UNITED STATES PATENT AND TRADEMARK OFFICE

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/045,717	10/19/2001	Kireeti Kompella	1014-013US01	9695

28863 7590 08/24/2005	EXAMINER	
SHUMAKER & SIEFFERT, P. A.	SHAW, PELING ANDY	
8425 SEASONS PARKWAY		
SUITE 105	ART UNIT	PAPER NUMBER
ST. PAUL, MN 55125	2144	

DATE MAILED: 08/24/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

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<table>
<tr>
<td rowspan="2">Office Action Summary</td>
<td>Application No.
10/045,717</td>
<td>Applicant(s)
KOMPELLA, KIREETI</td>
</tr>
<tr>
<td>Examiner
Peling A. Shaw</td>
<td>Art Unit
2144</td>
</tr>
</table>

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE <u>3</u> MONTH(S) FROM
THE MAILING DATE OF THIS COMMUNICATION.
- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed
  after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
  Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any
  earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on <u>19 October 2001</u>.

2a)☐ This action is **FINAL**.   2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is
closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) <u>1-44</u> is/are pending in the application.

    4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) <u>1-44</u> is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on <u>19 October 2001</u> is/are: a)☒ accepted or b)☐ objected to by the Examiner.

    Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

    Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

    a)☐ All   b)☐ Some * c)☐ None of:

      1.☐ Certified copies of the priority documents have been received.

      2.☐ Certified copies of the priority documents have been received in Application No. _____.

      3.☐ Copies of the certified copies of the priority documents have been received in this National Stage
application from the International Bureau (PCT Rule 17.2(a)).

    * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1)☒ Notice of References Cited (PTO-892)

2)☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)

3)☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
    Paper No(s)/Mail Date _____.

4)☐ Interview Summary (PTO-413)
    Paper No(s)/Mail Date. _____ .

5)☐ Notice of Informal Patent Application (PTO-152)

6)☐ Other: _____.

DETAILED ACTION

Priority

1.   This application has no priority claim made. The filing date is 10/19/2001

Claim Rejections - 35 USC § 112, second paragraph

2.   The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the
> subject matter which the applicant regards as his invention.

Claims 10 and 35 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for

failing to particularly point out and distinctly claim the subject matter which applicant

regards as the invention.

    a. Claim 10 and 35 depend upon claim 8 and 33 respectively. These do not point out any

       additional distinct limitation other than those contained in claim 8 and 33

       respectively.

Claims 10 and 35 should be removed.

Claim Rejections - 35 USC § 101 Utility

3.   35 U.S.C. 101 reads as follows:

> Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or
> any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and
> requirements of this title.

Claims 12-16 are rejected under 35 U.S.C. 101 because the claimed invention is not

supported by either a specific asserted utility or a well established utility.

    a. Claim 12 is claiming a data structure residing on a computer-readable medium. It

       does not render any tangible utility by itself.

    b. Claims 13-16 depend upon claim 12. These are rejected for the same reason as for

       claim 12.

Claims 12-16 are rejected also under 35 U.S.C. 112, first paragraph. Specifically, since the

claimed invention is not supported by either an asserted utility or a well established utility for

the reasons set forth above, one skilled in the art clearly would not know how to use the

claimed invention.

Claim Rejections - 35 USC § 102

4.   The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the

basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless --

(e) the invention was described in (1) an application for patent, published under section
122(b), by another filed in the United States before the invention by the applicant for patent
or (2) a patent granted on an application for patent by another filed in the United States
before the invention by the applicant for patent, except that an international application filed
under the treaty defined in section 351(a) shall have the effects for purposes of this
subsection of an application filed in the United States only if the international application
designated the United States and was published under Article 21(2) of such treaty in the
English language.

Claims 1, 6-9, 11, 17, 20-21, 24-28, 31-34, 36-38 and 41-44 are rejected under 35

U.S.C. 102(e) as being anticipated by Cain (US 6857026 B1), hereinafter referred as Cain.

    a. Regarding claim 1, Cain disclosed a method comprising: storing route data

       representing routes within a computer network (column 3, line 50-63; column 4, line

       12-29 and 42-56); storing next hop data representing network devices neighboring a

       network router (column 4, line 12-29 and 42-56); and storing indirect next hop data

       that maps at least a subset of the routes represented by the route data to a common

       portion of the next hop data (column 3, line 50-63; column 4, line 12-29 and 42-56).

b. Regarding claim 6, Cain disclosed the method of claim 1, wherein storing the next

hop data comprises storing an array of next hop data elements, and further wherein

the common portion of the next hop data comprises at least one next hop data element

(column 3, line 50-63).

c. Regarding claim 7, Cain disclosed the method of claim 1, further comprising:

receiving a packet comprising network update information (column 5, line 51-63);

and modifying the common portion of the next hop data in response to the network

update information (column 5, line 19-28 and 42-50).

d. Regarding claim 8, Cain disclosed the method of claim 1, further comprising: storing

routing information within a routing engine, wherein the routing information

represents routes within a network (column 5, line 9-29 and 42-50); and storing the

route data, the indirect next hop data and the next hop data within a packet forwarding

engine (column 5, line 9-29 and 42-67).

e. Regarding claim 9, Cain disclosed the method of claim 8, further comprising:

receiving a packet comprising network topology update information (column 1, line

29-37; Fig. 2, item 204; column 4, line 66-column 5, line 8; column 5, line 29-41);

updating the routing information within the routing engine (Fig. 2, item 210; column

2, line 7-10; column 4, line 66-column 5, line 8; column 19-28 and 42-50); and

issuing a message from the routing engine to direct the packet forwarding engine to

modify the common portion of the next hop data in response to the network update

information (column 3, line 11-20; column 5, line 51-63).

f.   Regarding claim 11, Cain disclosed the method of claim 9, wherein storing the

routing information includes storing a copy of the route data, the indirect next hop

data and the next hop data stored within the packet forwarding engine, and issuing the

message comprises analyzing the copy to identify the next hop for modification (Fig.

2; column 4, line 66-column 5, line 67).

g.   Claim 17 is of the same scope as claim 1. It is rejected for the same reason as for

claim 1.

h.   Regarding claim 20, Cain disclosed the router of claim 17, wherein some of the next

hop data represents software modules for processing data packets (column 6, lin1 1-

18).

i.   Regarding claim 21, Cain disclosed the router of claim 20, wherein each of the

software modules is selected from one of a packet filter, a policy enforcer and a

packet counter (column 4, line 12-29).

j.   Claims 24-28, 31-34, 36-38 and 41-44 are of the same scope of claims 1, 6-9 and 11.

These are rejected for the same reason as for claims 1, 6-9 and 11.

Cain disclosed all limitations of claims 1, 6-9, 11, 17, 20-21, 24-28, 31-34, 36-38 and 41-44.

Claims 1, 6-9, 11, 17, 20-21, 24-28, 31-34, 36-38 and 41-44 are rejected under 35 U.S.C.

102(e).

Claim Rejections - 35 USC § 103

5.   The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all

obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or
described as set forth in section 102 of this title, if the differences between the subject matter

sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

Claims 2-5, 18-19, 22-23, 29-30 and 39-40 are rejected under 35 U.S.C. 103(a) as being unpatentable over Cain (US 6857026 B1), hereinafter referred as Cain as applied to claim 1 above, and further in view of Aramaki et al. (US 6618760 B1), hereinafter referred as Aramaki.

a. Cain shows (claim 1) a method comprising: storing route data representing routes within a computer network (column 3, line 50-63; column 4, line 12-29 and 42-56); storing next hop data representing network devices neighboring a network router (column 4, line 12-29 and 42-56); and storing indirect next hop data that maps at least a subset of the routes represented by the route data to a common portion of the next hop data (column 3, line 50-63; column 4, line 12-29 and 42-56). Cain also shows (claim 3) wherein storing the indirect next hop data comprises: storing a reference to a primary next hop (column 4, line 12-56), and storing a reference to a backup next hop (column 4, line 12-56); (claim 4) further comprising routing packets to the backup next hop in response to a network event (column 3, line 38-49; column 4, line 30-41). Cain does not show (claim 2) wherein storing route data comprises storing a radix tree having a set of leaf nodes, wherein each leaf node corresponds to a destination within the network; (claim 5) wherein storing the indirect next hop data comprises storing a data pointer within each of the leaf nodes.

b. Aramaki shows (claim 2) wherein storing route data comprises storing a radix tree having a set of leaf nodes, wherein each leaf node corresponds to a destination within

the network (column 2, line 14-40); (claim 5) wherein storing the indirect next hop

data comprises storing a data pointer within each of the leaf nodes (column 5, line 48-

column 6, line 16) in an analogous art for the purpose of forwarding information

retrieval technique.

c. It would have been obvious to a person of ordinary skill in the art at the time of the

invention was made to modify Cain's functions of using alternate routes for fail-over

in a communication network with Aramaki's specific usage of radix tree and pointer

in routing table.

d. The modification would have been obvious because one of ordinary skill in the art

would have been motivated to use radix tree and pointer in routing table as per

Aramaki's teaching in a routing table specifying preferred and alternate routes as per

Cain's teaching.

e. Claims 18-19, 22-23, 29-30 and 39-40 are of the same scope of claims 2-3 and 5.

These are rejected for the same reason as for claims 2-3 and 5.

Together Cain and Aramaki disclosed all limitations of claims 2-5, 18-19, 22-23, 29-30 and

39-40. Claims 2-5, 18-19, 22-23, 29-30 and 39-40 are rejected under 35 U.S.C. 103(a).

Remarks

6.   The following pertaining arts are discovered and not used in this office action. Office

reserves the right to use these arts in later actions.

a. Medard et al. (US 6047331 A) Method and apparatus for automatic protection

switching

b. Marques et al. (US 6643706 B1) Scaleable route redistribution mechanism

Conclusion

7.   The prior art made of record and not relied upon is considered pertinent to applicant's

disclosure. Refer to the enclosed PTO-892 for details.

Any inquiry concerning this communication or earlier communications from the

examiner should be directed to Peling A. Shaw whose telephone number is (571) 272-7968. The

examiner can normally be reached on M-F 8:00 - 4:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's

supervisor, David A. Wiley can be reached on (571) 272-3923. The fax phone number for the

organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the statu9s of an application may be obtained from the Patent

Application Information Retrieval (PAIR) system. Status information for published applications

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system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

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